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A Service Disabled Veteran Owned Small Business

November 23, 2007

Ms. Diana Bailey
U.S. Environmental Protection Agency
Region 7
Superfund Division
Federal Facilities and Special Emphasis Branch
901 North 5th Street Kansas City, Kansas 66101

Re: Regional Oversight Contract III, EPA Contract No. EP-S7-06-11
Task Order No. 009
Federal Facilities Preliminary Assessment Review
Quickscore Preliminary Assessment Review Report
U.S. Coast Guard Old Saint Louis Base
Saint Louis, Missouri

Dear Ms. Bailey:

The Chamberlain Group, Ltd. and its teammate Professional Environmental Engineers, Inc. is pleased to submit this Federal Facilities Preliminary Assessment Review (FFPAR) Draft and Quickscore Preliminary Assessment Review (QPAR) Report for the U.S. Coast Guard Old Saint Louis Base (or the USCG), located in Saint Louis, Missouri. The primary document reviewed for the FFPAR was the *Remedial Investigation/Feasibility Study, United States Coast Guard, Old Base, St. Louis, Missouri, September 2002*

Potential Sources of Contamination

Potential sources of contamination are (1) former underground storage tanks, (2) former above ground storage tanks, (3) pad-mounted transformer, (4) pole mounted transformers, (5) hazardous waste storage building, (6) on-site fill material, and (7) the Chemtech Distribution, Inc. facility.

Federal Facilities Preliminary Assessment Review

The Chamberlain Group identified seven data gaps and four informational data gaps within the *Remedial Investigation/Feasibility Study*. Recommendations are provided in order to resolve each of these. Thirty-two items from the HRS Scoring Checklist were not provided.

Preliminary Hazard Ranking System Scoring

Quickscore version 2.3 was used to calculate the Hazardous Ranking System score. Trichloroethylene (TCE), detected in ground water samples below the USCG site, was used as the released constituent to calculate scores for all pathways. It is hypothesized that TCE is emanating from soil contamination below the Chemtech Distribution northern boundary tank farm. The tank farm is located immediately across the southern boundary of the USCG property. TCE has a toxicity value of 10,000, a mobility factor of 1.0, and a persistence value of 0.4. A contaminated area of 34,000 square feet is hypothesized. This area results in a hazardous waste quantity factor of 10, which is used to calculate each pathway score. A contaminated area greater than 3.4 million square feet (78 acres) is required to obtain the next higher hazardous waste quantity factor of 100. A Potential Contamination factor was determined for all pathway targets due to the absence of Level I or Level II concentration samples for the targets.

A score of 0.46 was calculated for the site. Due to a relativity low quantity of available targets for each pathway, the possibility of the next higher hazardous waste quantity factor has negligible effect on the site score. The score is calculated from the uncapped pathway scores described below.

An uncapped pathway score of 0.6 was calculated for the ground water migration pathway. The low score is the result of the absence of the following targets identified within the ground water target distance limit of four miles: (1) drinking water wells, (2) individuals served by drinking water wells, or (3) wells providing (a) irrigation (5-acre minimum) of commercial food crops or commercial forage crops, (b) watering of commercial livestock, (c) an ingredient in commercial food preparation, (d) a supply for commercial aquaculture, or (e) a supply for a major or designated water recreation area. The assumption that the underlying aquifer, within the target distance limit, is usable for drinking water wells causes the score to be generated.

An uncapped pathway score of 0.33 was calculated for the surface water migration pathway. The low score is the result of no reported surface water intake or fishery, and few sensitive environments within the 15-mile downstream target distance limit. The assumption that within the 15-mile downstream limit a portion of the surface water could be designated as usable for drinking water, and the distance of wetland frontage along the Mississippi River, cause the score to be generated..

An uncapped pathway score of 0.6 was calculated for the soil exposure pathway. The absence of resident individuals or terrestrial sensitive environments exiting on the property, and the presence of a fenced perimeter, contributes to the low score. A score is generated by the presence of full time and part time workers within 200 feet of the contaminated area, residences within ¼ mile, and the level of population count within one mile of the contaminated area.

Summary

Elevated BTEX and chlorinated solvents have been consistently observed in groundwater samples from wells, located along the southern boundary of the USCG property adjacent to the Chemtech facility, since the inception of groundwater monitoring in 1992. The origin of the commingled VOC plumes appears to be the result of the migration of contamination from the central portion of the Chemtech facility due to previous spills and releases of hazardous materials at the chemical distribution facility. Elevated VOC concentrations in the seep sampling results indicate that the BTEX and chlorinated solvent plumes are migrating toward the Mississippi River as well. While the contaminated groundwater in the site vicinity is not used, the groundwater pathway provides a conduit for contaminants to be released into the Mississippi River through seeps along the riverbank.

In addition to the BTEX and chlorinated solvents contamination, other contamination that appears to be present at the site, such as the elevated total petroleum hydrocarbons (TPH) observed in the soil and groundwater, may be related to the former USTs that were formerly used at the site. Elevated concentrations of metals (particularly arsenic and lead) may be related to the slag that comprises a high percentage of the fill material on-site.

Prior to any remediation, additional sampling is warranted to better delineate the extent of soil and groundwater contamination, to sufficiently evaluate remedial options, and to evaluate risks to the current and future site receptors.

The low HRS score of 0.46 is primary the result of a relativity low quantity of available targets for each pathway.

If you have any questions please do not hesitate to contact us.

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Preliminary Hazard Ranking System Scoring

An assessment of the Old St. Louis Coast Guard Base was conducted using the EPA Hazard Ranking System (HRS). The software application Quickscore version 2.3 was used to automate the HRS score calculations. An HRS score for the site was calculated by the evaluation and assignment of pathway scores to the (1) ground water migration, (2) surface water migration, (3) air migration, and (4) soil exposure pathways. Each pathway score is the product of the three factor categories of (1) likelihood of release, (2) waste characteristics (WC), and (3) a target factor. The following decisions were made regarding the pathway factors categories to perform the Old St. Louis Coast Guard Base HRS score calculation:

1. A release of contamination was assumed for the ground water migration, surface water migration, and soil exposure pathways.
2. Trichloroethylene (TCE), detected in ground water samples below the U.S. Coast Guard Old Saint Louis Base, was used as the released constituent to calculate scores for all pathways. It is hypothesized that TCE is emanating from soil contamination below the Chemtech Distribution northern boundary tank farm. The tank farm is located immediately across the southern boundary of the U.S. Coast Guard Old Saint Louis Base.
3. A Potential Contamination factor was determined for all pathway targets due to the absence of Level I or Level II concentration samples for the targets.

A score of 0.46 was calculated for the site. The score is calculated from the uncapped pathway scores described below.

An uncapped pathway score of 0.6 was calculated for the ground water migration pathway. The low score is the result of the absence of the following targets identified within the ground water target distance limit of four miles: (1) drinking water wells, (2) individuals served by drinking water wells, or (3) wells providing (a) irrigation (5-acre minimum) of commercial food crops or commercial forage crops, (b) watering of commercial livestock, (c) an ingredient in commercial food preparation, (d) a supply for commercial aquaculture, or (e) a supply for a major or designated water recreation area. The assumption that the underlying aquifer, within the target distance limit, is usable for drinking water wells causes a score to be generated.

An uncapped pathway score of 0.33 was calculated for the surface water migration pathway. The low score is the result of no reported surface water intake or fishery, and few sensitive environments within the 15-mile downstream target distance limit. The assumption that within the 15-mile downstream limit a portion of the surface water could be designated as usable for drinking water, and the distance of wetland frontage along the Mississippi River, cause a score to be generated.

An uncapped pathway score of 0.6 was calculated for the soil exposure pathway. The absence of resident individuals or terrestrial sensitive environments on the property, and the presence of a fenced perimeter, contributes to the low score. A score is however generated by the presence of full-time and part-time workers within 200 feet of the contaminated area, residences within ¼ mile, and the level of population count within one mile of the contaminated area.

****** CONFIDENTIAL ******
******PRE-DECISIONAL DOCUMENT ******
****** SUMMARY SCORESHEET ******
****** FOR COMPUTING PROJECTED HRS SCORE ******

****** Do Not Cite or Quote ******

Site Name: Old St. Louis Coast Guard Base Region: 7

City, County, State: Saint Louis MO Evaluator: Robert Hall

EPA ID#: MON000705786 Date: 11/20/2007

Lat/Long: N38° 33' 20.53", W90° 14' 46.25" T/R/S:

Congressional District:

This Scoresheet is for:

Scenario Name: Chemtech North Tank Farm Spills

Description: Multiple spills from the Chemtech Distribution, Inc. property northern boundary tank farm contaminate approximately 35,000 sq. ft. of soil.

	S pathway	S^2 pathway
Ground Water Migration Pathway Score (S_{gw})	0.6	0.36
Surface Water Migration Pathway Score (S_{sw})	0.33	0.1089
Soil Exposure Pathway Score (S_s)	0.6	0.36
Air Migration Score (S_a)	0	0
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		0.8289
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		0.207225
$/ (S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		0.46

υ Pathways not assigned a score (explain):

TABLE 3-1 –GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Aquifer Evaluated:			
Likelihood of Release to an Aquifer:			
1. Observed Release	550	550	
2. Potential to Release:			
2a. Containment	10		
2b. Net Precipitation	10		
2c. Depth to Aquifer	5		
2d. Travel Time	35		
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500		
3. Likelihood of Release (higher of lines 1 and 2e)	550		550
Waste Characteristics:			
4. Toxicity/Mobility	(a)	10000	
5. Hazardous Waste Quantity	(a)	10	
6. Waste Characteristics	100		18
Targets:			
7. Nearest Well	(b)	0	
8. Population:			
8a. Level I Concentrations	(b)	0	
8b. Level II Concentrations	(b)	0	
8c. Potential Contamination	(b)	0	
8d. Population (lines 8a + 8b + 8c)	(b)	0	
9. Resources	5	5	
10. Wellhead Protection Area	20	0	
11. Targets (lines 7 + 8d + 9 + 10)	(b)		5
Ground Water Migration Score for an Aquifer:			
12. Aquifer Score [(lines 3 x 6 x 11)/82,5000][c]	100		0.6
Ground Water Migration Pathway Score:			
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)[c]	100		0.6

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 4-1 –SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Watershed Evaluated: Mississippi River			
Drinking Water Threat			
Likelihood of Release:			
1. Observed Release	550	550	
2. Potential to Release by Overland Flow:			
2a. Containment	10		
2b. Runoff	10		
2c. Distance to Surface Water	5		
2d. Potential to Release by Overland Flow [lines 2a(2b + 2c)]	35		
3.Potential to Release by Flood:			
3a. Containment (Flood)	10		
3b. Flood Frequency	50		
3c. Potential to Release by Flood (lines 3a x 3b)	500		
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500		
5. Likelihood of Release (higher of lines 1 and 4)	550		550
Waste Characteristics:			
6. Toxicity/Persistence	(a)	4000	
7. Hazardous Waste Quantity	(a)	10	
8. Waste Characteristics	100		10
Targets:			
9. Nearest Intake	50	0	
10. Population:			
10a. Level I Concentrations	(b)	0	
10b. Level II Concentrations	(b)	0	
10c. Potential Contamination	(b)	0	
10d. Population (lines 10a + 10b + 10c)	(b)	0	
11. Resources	5	5	
12. Targets (lines 9 + 10d + 11)	(b)		5
Drinking Water Threat Score:			
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100		0.33
Human Food Chain Threat			
Likelihood of Release:			
14. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			
15. Toxicity/Persistence/Bioaccumulation	(a)	200000	
16. Hazardous Waste Quantity	(a)	10	
17. Waste Characteristics	1000		32
Targets:			
18. Food Chain Individual	50	0	
19. Population			
19a. Level I Concentration	(b)	0	
19b. Level II Concentration	(b)	0	
19c. Potential Human Food Chain Contamination	(b)	0	
19d. Population (lines 19a + 19b + 19c)	(b)	0	
20. Targets (lines 18 + 19d)	(b)		0
Human Food Chain Threat Score:			
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100		0
Environmental Threat			
Likelihood of Release:			
22. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	2000	
24. Hazardous Waste Quantity	(a)	10	

25. Waste Characteristics	1000		10
Targets:			
26. Sensitive Environments			
26a. Level I Concentrations	(b)	0	
26b. Level II Concentrations	(b)	0	
26c. Potential Contamination	(b)	0.00275	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	0	
27. Targets (value from line 26d)	(b)		0
Environmental Threat Score:			
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60]	60		0
Surface Water Overland/Flood Migration Component Score for a Watershed			
29. Watershed Score[c] (lines 13+21+28, subject to a max of 100}	100		0.33
Surface Water Overland/Flood Migration Component Score			
30. Component Score (S_{sw})[c] (highest score from line 29 for all watersheds evaluated)	100		0.33

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 4-25 --GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Aquifer Evaluated:			
Drinking Water Threat			
Likelihood of Release to an Aquifer:			
1. Observed Release	550	550	
2. Potential to Release:			
2a. Containment	10		
2b. Net Precipitation	10		
2c. Depth to Aquifer	5		
2d. Travel Time	35		
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500		
3. Likelihood of Release (higher of lines 1 and 2e)	550		550
Waste Characteristics:			
4. Toxicity/Mobility	(a)	4000	
5. Hazardous Waste Quantity	(a)	10	
6. Waste Characteristics	100		10
Targets:			
7. Nearest Well	(b)	0	
8. Population:			
8a. Level I Concentrations	(b)		
8b. Level II Concentrations	(b)		
8c. Potential Contamination	(b)	0	
8d. Population (lines 8a + 8b + 8c)	(b)	0	
9. Resources	5		
10. Targets (lines 7 + 8d + 9)	(b)	0	
Drinking Water Threat Score:			
11. Drinking Water Threat Score ([lines 3 x 6 x 10]/82,500, subject to max of 100)	100		0
Human Food Chain Threat			
Likelihood of Release:			
12. Likelihood of Release (same value as line 3)	550		550
Waste Characteristics:			
13. Toxicity/Mobility/Persistence/Bioaccumulation	(a)	500000	
14. Hazardous Waste Quantity	(a)	10	
15. Waste Characteristics	1000		32
Targets:			
16. Food Chain Individual	50		
17. Population			
17a. Level I Concentration	(b)		
17b. Level II Concentration	(b)		
17c. Potential Human Food Chain Contamination	(b)	0	
17d. Population (lines 17a + 17b + 17c)	(b)	0	
18. Targets (lines 16 + 17d)	(b)		0
Human Food Chain Threat Score:			
19. *Human Food Chain Threat Score [(lines 12x15x18)/82,500,suject to max of 100]*	*100*		*0*
Environmental Threat			
Likelihood of Release:			
20. Likelihood of Release (same value as line 3)	550		550
Waste Characteristics:			
21. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	2000	
22. Hazardous Waste Quantity	(a)	10	
23. Waste Characteristics	1000		10
Targets:			
24. Sensitive Environments			
24a. Level I Concentrations	(b)	0	
24b. Level II Concentrations	(b)	0	

24c. Potential Contamination	(b)	0	
24d. Sensitive Environments (lines 24a + 24b + 24c)	(b)	0	
25. Targets (value from line 24d)	(b)		0
Environmental Threat Score:			
26. Environmental Threat Score [(lines 20x23x25)/82,500 subject to a max of 60]	60		0
Ground Water to Surface Water Migration Component Score for a Watershed			
27. Watershed Score[c] (lines 11 + 19 + 28, subject to a max of 100)	100		0
28. Component Score (S_{gs})[c] (highest score from line 27 for all watersheds evaluated, subject to a max of 100)	100		0

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 5-1 --SOIL EXPOSURE PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Likelihood of Exposure:			
1. Likelihood of Exposure	550		550
Waste Characteristics:			
2. Toxicity	(a)	10000	
3. Hazardous Waste Quantity	(a)	10	
4. Waste Characteristics	100		18
Targets:			
5. Resident Individual	50	0	
6. Resident Population:			
6a. Level I Concentrations	(b)	0	
6b. Level II Concentrations	(b)	0	
6c. Population (lines 6a + 6b)	(b)	0	
7. Workers	15	5	
8. Resources	5	0	
9. Terrestrial Sensitive Environments	(c)	0	
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)		5
Resident Population Threat Score			
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)		49500
Nearby Population Threat			
Likelihood of Exposure:			
12. Attractiveness/Accessibility	100	5	
13. Area of Contamination	100	20	
14. Likelihood of Exposure	500		5
Waste Characteristics:			
15. Toxicity	(a)	10000	
16. Hazardous Waste Quantity	(a)	10	
17. Waste Characteristics	100		18
Targets:			
18. Nearby Individual	1	1	
19. Population Within 1 Mile	(b)	4.04	
20. Targets (lines 18 + 19)	(b)		1
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)		90
Soil Exposure Pathway Score:			
22. Pathway Score[d] (S_s), [lines (11+21)/82,500, subject to max of 100]	100		0.6

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60
[d] Do not round to nearest integer

TABLE 6-1 --AIR MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Likelihood of Release:			
1. Observed Release	550	0	
2. Potential to Release:			
2a. Gas Potential to Release	500		
2b. Particulate Potential to Release	500		
2c. Potential to Release (higher of lines 2a and 2b)	500		
3. Likelihood of Release (higher of lines 1 and 2c)	550		0
Waste Characteristics:			
4. Toxicity/Mobility	(a)		
5. Hazardous Waste Quantity	(a)		
6. Waste Characteristics	100		
Targets:			
7. Nearest Individual	50		
8. Population:			
8a. Level I Concentrations	(b)		
8b. Level II Concentrations	(b)		
8c. Potential Contamination	(c)		
8d. Population (lines 8a + 8b + 8c)	(b)		
9. Resources	5		
10. Sensitive Environments:			
10a. Actual Contamination	(c)		
10b. Potential Contamination	(c)		
10c. Sensitive Environments (lines 10a + 10b)	(c)		
11. Targets (lines 7 + 8d + 9 + 10c)	(b)		
Air Migration Pathway Score:			
12. Pathway Score (S_a) [(lines 3 x 6 x 11)/82,500][d]	100		0

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.
[d] Do not round to nearest integer